

## CLAIMS

6 What is claimed is:

1. A LCOS projection system, comprising:

a plurality of resonant microcavity anodes (RMAs), each for emitting a respective wavelength of light;

12 a liquid crystal on silicon (LCOS) device for each of the plurality of resonant microcavity anodes, wherein each of the LCOS devices emits an image;

a plurality of polarizing beam splitters for reflecting and redirecting the light and images from the RMAs and the LCOS devices; and ✓

a means for combining the images to provide a combined image.

2. The LCOS projection system of claim 1, wherein the projection system further comprises a projection lens for projecting the combined image.

3. The LCOS projection system of claim 1, wherein the means for combining comprises a crossed dichroic combiner.

4. The LCOS projection system of claim 1, wherein the means for combining comprises a color wavelength selector and a light path length compensator.

5. The LCOS projection system of claim 1, wherein each LCOS device comprises a combined LCOS microdisplay and quarter wave length plate.

30 6. The LCOS projection system of claim 1, wherein the plurality of resonant microcavity anodes are selected from the group of either "P" mode RMA devices or "S" mode RMA devices.

7. A light valve projection system, comprising:

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a plurality of resonant microcavity anodes (RMAs), each for emitting a  
6 respective wavelength of light;

an imager device for each of the plurality of resonant microcavity anodes,  
wherein each of the imager devices emits an image; and

a plurality of polarizing beam splitters for reflecting and redirecting the  
light and images from the RMAs and the imager devices. *Inc*

12 8. The light valve projection system of claim 7, wherein the system further  
comprises a combiner for combining the image from each of the imager devices. ✓

9. The light valve projection system of claim 7, wherein the imager device ✓  
comprises a LCOS microdisplay.

18 10. The light valve projection system of claim 8, wherein the system further ✓  
comprises a projection lens for receiving a combined image from the combiner.

11. The light valve projection system of claim 8, wherein the combiner is a  
crossed dichroic combiner.

24 12. The light valve projection system of claim 8, wherein the combiner  
comprises a light pathlength compensator cube and a ColorSelect system.

13. The light valve projection system of claim 7, wherein the system further  
comprises a light pathlength compensator cube.

30 14. The light valve projection system of claim 13, wherein the system further  
comprises a ColorSelect system.

15. The light valve projection system of claim 7, wherein the plurality of

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resonant microcavity anodes are selected from the group of either "P" mode  
6 RMA devices or "S" mode RMA devices.

16. A light valve projection system using a combined resonant microcavity  
anode field emission display, comprising:

at least a first illumination source, wherein the illumination source has an  
array of field emission display points for receiving a first input on a first side of a  
12 vacuum cavity and a corresponding array of resonant microcavity anodes on a  
second side of the vacuum cavity; and

at least a first LCOS device illuminated by the illumination source.

17. The light valve projection system of claim 16, wherein the at least first  
illumination source comprises the first illumination source for illuminating the  
first LCOS device in a red light, a second illumination source for illuminating a  
18 second LCOS device in a green light, and a third illumination source for  
illuminating a third LCOS device in a blue light.

18. The light valve projection system of claim 16, wherein the first, second,  
and third illumination sources have their own individual red, green and blue input  
24 sources.

19. A light valve projection system using a combined resonant microcavity  
anode cathode ray tube, comprising:

at least a first illumination source, wherein the illumination source  
receives a plurality of inputs simultaneously on a cathode of a first side of a  
30 vacuum cavity having no deflection coils and a corresponding array of resonant  
microcavity anodes on a second side of the vacuum cavity; and

at least a first LCOS device illuminated by the illumination source.

20. The light valve projection system of claim 19, wherein the at least first  
illumination source comprises the first illumination source for illuminating the

first LCOS device in a red light, a second illumination source for illuminating a  
6 second LCOS device in a green light, and a third illumination source for  
illuminating a third LCOS device in a blue light.

21. The light valve projection system of claim 19, wherein the first, second,  
and third illumination sources have their own individual red, green and blue input  
sources.

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